

Serial No.: 09/739,903  
Atty. Docket No.: P66227US0

### REMARKS

The Office Action mailed August 27 , 2003, has been carefully reviewed and by this Amendment, Applicants have amended the title and added claims 9 and 10. Claims 1-10 are pending in the application.

The Examiner noted that the Applicants have not yet filed a certified copy of the foreign priority application filed in Korea on 21 December 1999 (1999-59760). Accordingly, Applicants hereby provide such certified copy as an enclosure with this Amendment.

The Examiner rejected claims 1-8 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,953,139 to Nemecek et al. ("Nemecek") in view of Horiuchi et al., "Stimulated Brillouin Scattering Suppression Effects Induced by Cross-Phase Modulation in High Power WDM Repeaterless Transmission", Electronics Letters, Vol. 34, No. 4, 19 February 1998 ("Horiuchi").

As set forth in claims 1 and 5, as well as new claim 9, the present invention is directed to an apparatus and method for suppressing stimulated Brillouin scattering (SBS) in a optical transmission system. The apparatus includes a plurality of first transmitters 1 for transmitting information signals through a signal channel, and a second transmitter 2 for generating and transmitting a supervisory signal through a supervisory channel. The modulation frequency and intensity of the supervisory signal generates a phase modulation to the plurality of information signals, being modulated in phase to the information signals by a cross phase modulation effect, thereby broadening the line width of the information signal. Thus, according to the present invention, the SBS is suppressed by modulating the supervisory channel in WDM links so that an additional phase modulator is not used.

By contrast, Nemecek discloses a WDM system in which signals from a plurality of optical transmitters are multiplexed in multiplexer 14 and the resulting composite optical signal is input to a separate phase modulator 16. The phase modulator modulates the composite optical signal with a single tone modulation signal 31 generated by the oscillator 30, to thereby increase the SBS threshold (see column 3, lines 30-65). The need for an additional phase modulation device 16 and oscillator for generating the single tone modulation signal to modulate the composite optical signal, as taught by Nemecek, is not analogous to the supervisory signal generated by the second transmitter in accordance with the present invention.

As discussed in the specification of the present invention, the use of a phase modulator is conventional and has the disadvantage of requiring such a phase modulator (in addition to an intensity modulator). In a WDM link, such as that discussed in Horiuchi, a width of spectrum is extended by phase modulation through a cross phase modulation. However, as noted on page 2, lines 14-22, in a WDM link such as Horiuchi, "conditions generating a phase modulation effect are determined by a transmission speed and a light intensity between each signal channel within the WDM channel." Therefore, when transmission speed and light intensity change, the phase modulation effect also changes, which limits the use of such cross phase modulation. Combining Horiuchi with Nemecek does not address or solve this problem.

The present solves these problems in a manner not known in the prior art, namely by generating a phase modulation effect by using a cross phase modulation effect generated in a signal channel by the modulation of a supervisory channel in WDM links.

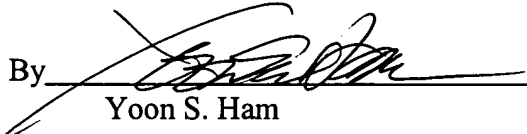
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For at least the foregoing reasons, claims 1, 5 and 9 are not obvious in view of Nemecek and Horiuchi, but are patentable thereover. Claims 2-4, 6-8 and 10 are also in condition for allowance as claims properly dependent on an allowable base claim and for the subject matter contained therein. Particularly, claims 2, 6 and 10 are not shown in the prior art as Nemecek does not disclose multiplexing of the first plurality of transmitter signals and the second transmitter signal for the supervisory channel in a common multiplexer. Nor does Nemecek teach or suggest a separate second receiver for detecting the supervisory channel once the supervisory signal has been separated from the information signals by a demultiplexer. Favorable reconsideration is therefore requested.

With the foregoing remarks, the original and new claims are in condition for allowance. Should the Examiner have any questions or comments, the Examiner is cordially invited to telephone the undersigned attorney so that the present application can receive an early Notice of Allowance.

Respectfully submitted,

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